

BALTIMORE COUNTY PUBLIC SCHOOLS

Date: April 8, 2008

TO: **BOARD OF EDUCATION**

FROM: Dr. Joe A. Hairston, Superintendent

SUBJECT: **CONSIDERATION OF THE MATHEMATICS CURRICULUM, PREK-12**

ORIGINATOR: Sonia Diaz, Chief Academic Officer

RESOURCE PERSON(S) Dale R. Rauenzahn, Acting Assistant Superintendent, STEM
Patricia Baltzley, Director, Mathematics PreK-12

RECOMMENDATION

That the Board of Education approve, as reviewed by the Board of Education's Curriculum Committee, the Mathematics PreK-12 curriculum guides as directed by Policy 8130 and Policy 6000.

Executive Summary
Mathematics PreK-12 Curricula
April 8, 2008

There are 42 curriculum guides for 66 mathematics courses currently being taught in Baltimore County Public Schools. Some of the curriculum guides were designed to include the curriculum for more than one course. For example, the curriculum guide for Algebra I also includes differentiated curriculum for GT Grade 7 Algebra I, Grade 8 Academic Algebra I, High School Academic Algebra I, and Algebra and Data Analysis Adapted – five courses with one curriculum guide. The curricula for Mathematics PreK-12 range from the prekindergarten mathematics program to the gifted and talented Grade 5 mathematics course at the elementary level, from Algebraic Foundations in Grade 6 to gifted and talented Grade 8 Algebra 2 at the middle school level, and from Algebra and Data Analysis Adapted to Linear Algebra, an online course, at the high school level. The curriculum guide for each course describes the instructional path needed to progress from the standards and objectives of the course towards the target assessments created as part of the curriculum guide. Each guide includes the portion of the scope and sequence for PreK-12 mathematics that includes the grade/course before, the course, and the grade/course after in order for teachers to see the path of instruction and the importance of the current course objectives in the schema of mathematics. The Articulated Instruction Module (A.I.M.) provides the lens through which the curriculum can be viewed for alignment with the Voluntary State Curriculum and the state Core Learning Goals.

Curriculum guides vary depending on the content of the courses but each guide provides teachers with the necessary framework to plan and implement that particular mathematics program. Every curriculum guide is aligned to appropriate standards. For example, prekindergarten through Grade 8 curricula are aligned to the Voluntary State Curriculum; and, Algebra I courses and Geometry courses are aligned to the Core Learning Goals. Beyond algebra and geometry, the courses are aligned to the National Council of Teachers of Mathematics standards. Advanced placement courses for Calculus and Statistics are aligned to the College Board standards for that content. Each curriculum is designed to be an integral part of the PreK-12 mathematics program in meeting the county performance goals outlined in the *Blueprint for Progress* to help students meet state and county standards. Each is also designed to help students become confident mathematicians who understand mathematics, are effective problem solvers, can reason mathematically, and can communicate their understanding of mathematical concepts.

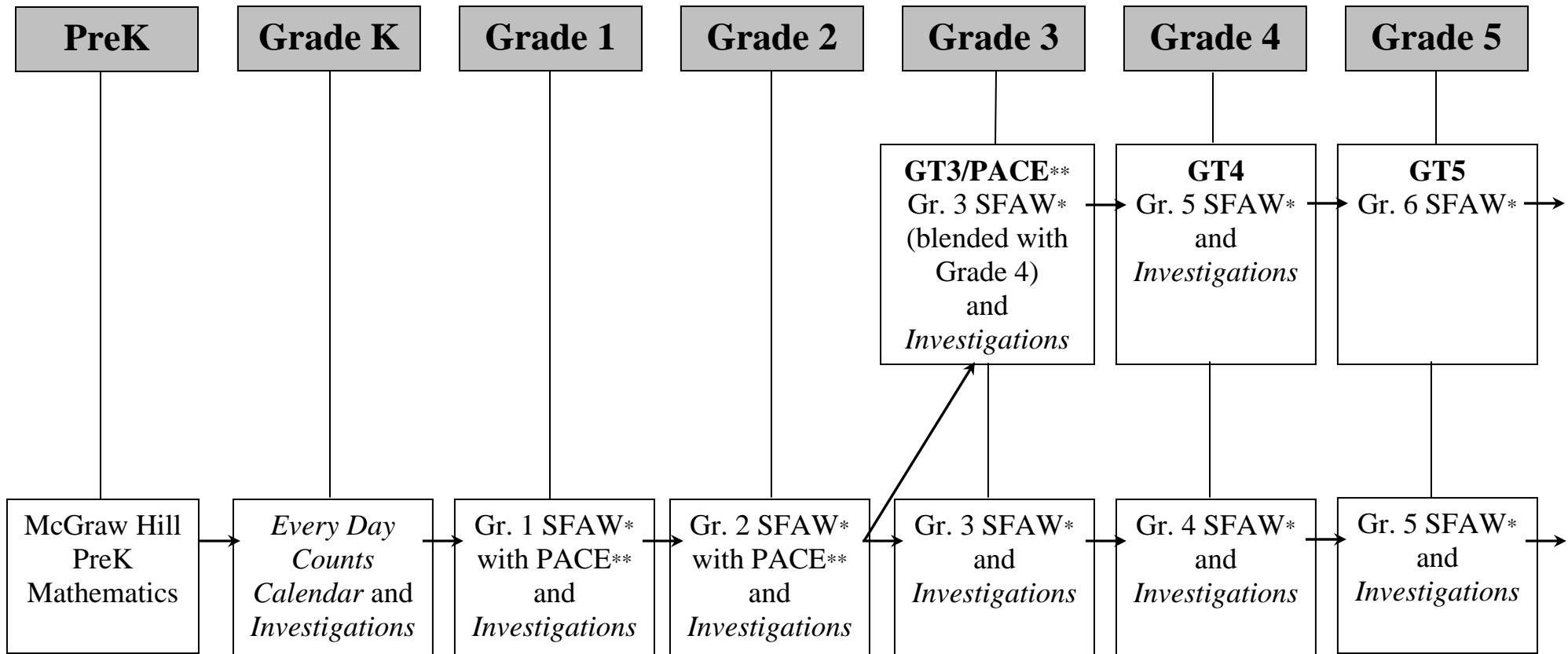
During the 2006-2007 school year, all mathematics curriculum guides were reviewed by auditors from Phi Delta Kappa. Their audit report was presented to the Board of Education of Baltimore County in February 2007. The overall ratings, out of a total of 15 points attainable for the curriculum guides, ranged from a one in Finite Mathematics to 14 points awarded to five different courses. The overall average rating for the PreK-8 curriculum guides was 10.6 out of a total of 15 points, and it was 9.2 out of a total of 15 points for the high school guides. The auditor's score was derived by reviewing five criteria: Objectives, Assessment, Prerequisites, Resources, and Strategies. A rubric was provided by Phi Delta Kappa for each of the areas to explain how a maximum of three points could be achieved in each of the five criterion areas.

The curriculum personnel from the Office of Mathematics PreK-12 have reviewed the audit findings carefully to determine the areas for each curriculum guide that need to be added, strengthened or supplemented. As curriculum guides are revised, these findings will undergird the revisions and improvements that will be made to the guide so that all of the necessary components as identified in the rubric will be included in the guide. The first revision has taken place with the Kindergarten Mathematics Curriculum Guide. Mathematics 6 and Precalculus courses are scheduled for revision spring of 2008.

Plans for subsequent revisions to the mathematics curricula in response to the PDK Audit have been submitted to the Chief Academic Officer and have become part of the five-year plan for curriculum development. The budgetary resources needed for these curricula revisions will be identified in the curriculum development schedule approved by the Chief Academic Officer.

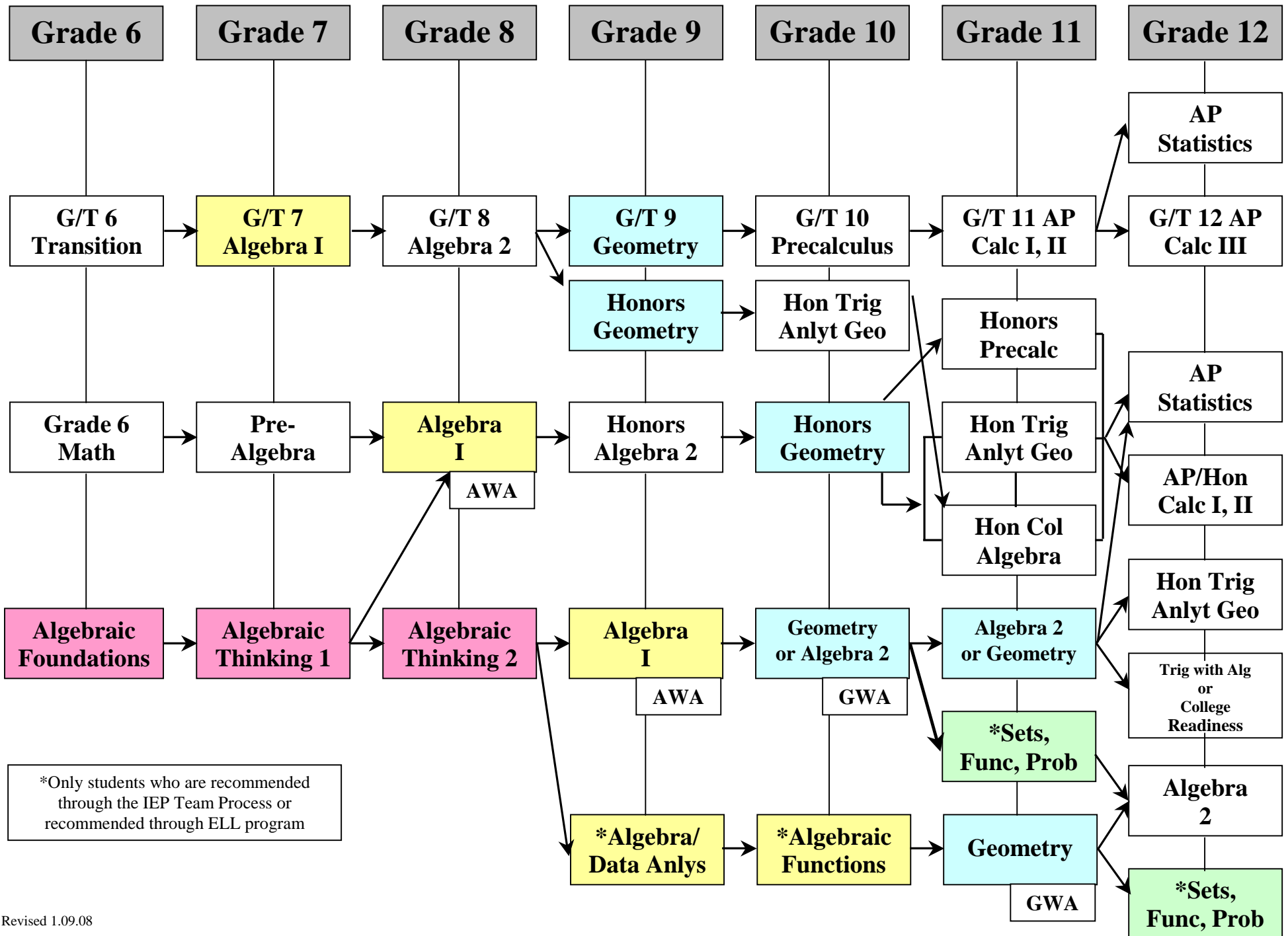
The Office of Mathematics PreK-12 is seeking approval for the mathematics curriculum guides with the understanding that all future revisions of these guides will reflect an alignment of the written, taught, and assessed curriculum, an expectation that will lead to a high-quality mathematics program for all students in Baltimore County Public Schools.

BCPS MATHEMATICS PROGRAM Grades PreK-5



*SFAW Scott Foresman-Addison Wesley
 **PACE Primary Achievement Curriculum Expectations

BCPS MATHEMATICS PROGRAM Grades 6-12



Math Curriculum Board Approval				
Number of Courses	Groupings of Curriculum Guides	Course Description	Course	Date of Curriculum Guide
1	1	ALG/DATA ANAL ADAPT	2021300	2005
2	1	ALGEBRA I	2021000	2005
3	1	ALGEBRA I GR 8	2008200	2005
4	1	ALGEBRA I GT 7	2007505	2005
5	2	ALGEBRA II	2022000	2004
6	2	ALGEBRA II GT 8	2008505	2004
7	2	ALGEBRA II HONORS	2022004	2004
8	2	ALGEBRA II: MAGNET	2022105	2004
9	3	ALGEBRA: ADVANCED	2027000	School Based
10	4	ALGEBRA: GT COLLEGE	2028205	1997
11	4	ALGEBRA: HON COLLEGE	2028004	1997
12	5	ALGEBRAIC FOUNDATION	2006100	Commercial
13	6	ALGEBRAIC FUNC ADAPT	2021900	Draft 2007
14	7	ALGEBRAIC TPCS/STATS	2026100	School Based
15	8	ALGEBRAICTHINKING P1	2007000	Commercial
16	9	ALGEBRAICTHINKING P2	2008000	Commercial
17	10	AP CALCULUS AB	2051206	Calculus I/II 2000
18	10	AP CALCULUS AB	2051306	Calculus I/II 2000
19	10	CALCULUS: GT INT	2050005	Calculus I/II 2000
20	10	CALCULUS: HONORS	2050404	Calculus I/II 2000
21	11	AP CALCULUS BC	2053006	Calculus III 1988
22	12	COLL READI MATH	2025000	Draft 2007
23	13	DIF EQUATIONS GT	2026005	Online MVLO
24	14	DISC. MATH DL: TOPIC	2069205	1988
25	14	DISC. MATH/COMP AG/GT	2069005	1988
26	14	DISCRETE MATH: HON.	2069104	1988
27	15	FINITE MATH: GT	2059205	School Based
28	15	FINITE MATH: MAGNET	2059105	School Based
29	16	GEOMETRY	2030000	Geo and Foundations of Geo 1999
30	17	GEOM: GT/IB MATH 9	2009007	1999
31	17	GEOMETRY: GT MATH 9	2009005	1999
32	17	GEOMETRY: HONORS	2030004	1999

Math Curriculum Board Approval				
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33	17	GEOMETRY: MAGNET	2030105	1999
34	18	LINEAR ALGEBRA GT	2028305	Online MVLO
35	19	MATHEMATICS PREK		Commercial
36	20	MATHEMATICS KINDERGARTEN		2007
37	21	MATH 1	520100	2006
38	22	MATH 2	520200	2006
39	23	MATH 3	520300	2006
40	24	MATH 3 GT	520305	2006
41	25	MATH 4	520400	2006
42	26	MATH 4 GT	520405	2006
43	26	MATH 5	520500	2006
44	27	MATH 5 GT	520505	2006
45	28	MATH STUDIESIB/GT	2019107	Commercial
46	29	MATHEMATICS 6	2006000	1999 revised
47	30	MATHEMATICS 6 G&T	2006005	1999 revised
48	31	MATHMODEL APP ALGEBR	2021500	Draft 2007
49	32	MODELING/SIM: MAGNET	2061005	School Based
50	33	MULTIVAR DIFF CALCGT	2070005	Online MVLO
51	34	PRE ALGEBRA 7	2007100	2000
52	35	PRECALC:F&G GT/IB	2010005	GT10 1997
53	35	PRE-CALCULUS GT	2049105	GT10 1997
54	35	PRE-CALCULUS GT	2049005	GT10 1997
55	35	FUNCTIONS: MAGNET	2041005	GT10 1997
56	36	PRE-CALCULUS HON	2049004	Hon PreCalc 1997
57	37	PROB/STATS: HONORS	2060304	School Based
58	38	SET FUNC & PROBABLTY	2023500	Draft 2007
59	39	STATISTICS	2060000	School Based
60	40	STATISTICS: GT/AP	2060306	2001
61	40	STATISTICS: MAGNET	2060105	2001
62	40	STATISTICS: MAGNT AP	2060106	2001
63	41	TRIG W/AN GEOM. GT	2040105	1998
64	41	TRIG W/AN GEOM. HON	2040104	1998
65	41	TRIGONOMETRY : HONORS	2040004	School Based
66	42	TRIGONOMETRY W/ALG.	2024000	2002